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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,571	08/27/2001	Koji Ono	35.C15701	1644

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EXAMINER

ORTIZ, EDGARDO

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/938,571

Applicant(s)

Ono

Examiner

Edgardo Ortiz

Art Unit

2815



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 7, 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 7, 13, 14, 17, 19-21, 24, and 26-29 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7, 13, 14, 17, 19-21, 24, and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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DETAILED ACTION

This Office Action is in response to a request for continued prosecution filed January 7, 2003.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims include the limitation “wherein said solid-state image pickup element is adhered onto said substrate with a flexible substrate”, however it is not clear as to which substrate Applicant is referring to, whether it is the “substrate provided with no wiring” or the “wiring substrate”.

Claims 19 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims include the limitation “ wherein said substrate is one of a glass substrate, a ceramic, a metal substrate, a resin substrate or a substrate formed by stacking two or more of glass, ceramic, metal ad resin substrates”, however it is not clear as to which substrate Applicant is referring to, whether it is the “substrate provided with no wiring” or the “wiring substrate”.

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Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, 13, 15, 17, 19, 20, 24, 26 and 27 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Applicant's admitted prior art as shown on figure 7 in view of Segawa et.al. (U.S. Patent No. 5,786,589). With regard to Claims 1 and 7, Applicant's admitted prior art teaches a solid-state image pickup element chip (1) on which a plurality of solid-state image pickup elements (7) are mounted, a protection cap (3) provided on a light incident side of said solid-state image pickup element chip and a wiring substrate (2) formed of a flexible material and connected electrically to said solid-state image pickup element chip, wherein a connection between said solid-state image pickup element chip and said wiring substrate is fixed only at a bump (6) formed on an electrode pad (5).

However, Applicant's admitted prior art fails to teach a substrate provided with no wiring and wherein the substrate provided with no wiring having a thermal coefficient substantially equal to the protection cap and both sealed with a resin so as to form a hollow space. Segawa discloses a semiconductor device including a substrate (101) provided with no wiring comprising glass and a

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protection cap (112), wherein both the substrate provided with no wiring and the protection cap are sealed with a resin (116) and the protection cap and the substrate with no wiring form a hollow space, see figure 1. The substrate with no wiring comprises glass it has a thermal coefficient substantially equal to the protection cap taught by Applicant's admitted prior art, since the protection is made of the same material in this case glass. Therefore, it would have been an obvious modification, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art to include a substrate provided with no wiring and wherein the substrate provided with no wiring having a thermal coefficient substantially equal to the protection cap and both sealed with a resin so as to form a hollow space, as clearly suggested by Segawa, in order to provide a hollow space for a light beam to be transmitted and a substrate with a thermal expansion coefficient the same as that of the protection cap, thus improving the operation of the device.

With regard to Claim 13, a further difference between Applicant's admitted prior art and the claimed invention is, an optical low-pass or an infrared filter on the protection cap. It would have been an obvious modification to someone with ordinary skill in the art, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art to include an optical low-pass or an infrared filter on the protection cap, since it is a known practice in the art to use optical low-pass or infrared filters to limit the spatial frequency of incident light from a subject.

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With regard to Claims 17 and 24, as best the examiner is able to ascertain the claimed invention, a further difference between Applicant's admitted prior art and the claimed invention is, a solid-state image pickup element chip adhered onto the wiring substrate with a flexible adhesive.

Segawa teaches a substrate provided with no wiring (101) which is adhered to a wiring substrate (102) by an adhesive (103). Therefore, it would have been an obvious modification, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art to include a solid-state image pickup element chip adhered onto the substrate with a flexible adhesive, as clearly suggested by Segawa, in order to provide stability between the chip and the wiring substrate.

With regard to Claims 19 and 26, as best the examiner is able to ascertain the claimed invention, a further difference between Applicant's admitted prior art and the claimed invention is, a substrate is one of a glass substrate, a ceramic, a metal substrate, a resin substrate or a substrate formed by stacking two or more of glass, ceramic, metal and resin substrates. Segawa teaches a substrate (101) comprising glass. Therefore, it would have been an obvious modification, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art to include a substrate comprising glass, as clearly suggested by Segawa, in order to provide a substrate capable of light transmission.

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With regard to Claims 20 and 27, a further difference between Applicant's admitted prior art and the claimed invention is, a resin selected from the group consisting of epoxy, acrylic and phenol-based resins. Segawa teaches a sealing resin (116) comprising epoxy. Therefore, it would have been an obvious modification, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art to include a sealing resin comprising epoxy, as clearly suggested by Segawa, in order to provide a resin which protects the electric and mechanical connections between a wiring substrate and a chip.

Claims 14, 21, 28 and 29 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Applicant's admitted prior art as shown on figure 7 in view of Segawa et.al. (U.S. Patent No. 5,786,589) and further in view of and further in view of Nakamura et.al. (U.S. Patent No. 5,138,145). With regard to Claim 14, as stated supra, Applicant's admitted prior art and Segawa essentially disclose the claimed invention but fail to show a light shielding layer at a periphery of the protection cap. Nakamura teaches an image sensor with simplified chip mounting that includes an image pickup element chip formed on a substrate through a light-shielding layer (40) that comprises a flexible adhesive of resin. Therefore, it would have been an obvious modification to someone with ordinary skill in the art, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art and Segawa, to include a solid-state image pickup element chip formed on the substrate through a light-shielding layer, as clearly suggested by Nakamura, in order to prevent malfunction of the device that may be caused by light reflection.

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With regard to Claims 21 and 28, a further difference between Applicant's admitted prior art and Segawa and the claimed invention is, a light shielding layer between the substrate and the solid-state image pickup element chip. Nakamura teaches an image sensor with simplified chip mounting that includes an image pickup element chip formed on a substrate through a light-shielding layer (40) that comprises a flexible adhesive of resin. Therefore, it would have been an obvious modification to someone with ordinary skill in the art, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art and Segawa, to include a light shielding layer between the substrate and the solid-state image pickup element chip, as clearly suggested by Nakamura, in order to prevent malfunction of the device that may be caused by light reflection.

With regard to Claim 29, a further difference between Applicant's admitted prior art and Segawa and the claimed invention is, a light shielding layer formed of a light shielding and flexible adhesive. Nakamura teaches an image sensor with simplified chip mounting that includes an image pickup element chip formed on a substrate through a light-shielding layer (40) that comprises a flexible adhesive of resin. Therefore, it would have been an obvious modification to someone with ordinary skill in the art, at the time of the invention, to modify the structure as taught by Applicant's admitted prior art and Segawa, to include a light shielding layer formed of a light shielding and flexible adhesive, as clearly suggested by Nakamura, in order to prevent malfunction of the device that may be caused by light reflection.

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Response to Arguments

3. Applicant's arguments with respect to claims 1, 7 and 13, 14, 17, 19-21, 24 and 26-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Edgardo Ortiz (Art Unit 2815), whose telephone number is (703) 308-6183 or by fax at (703) 308-7724. In case the Examiner can not be reached, you might call Supervisor Eddie Lee at (703) 308-1690. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 receptionist whose telephone number is (703) 308-0956.

EO/AU 2815

3/21/03



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